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[SYSTEM FOR SEARCH AND ANALYSIS OF SYSTEMATIC DEFECTS IN INTEGRATED CIRCUITS]

Abstract

Disclosed is a method of locating systematic defects in integrated circuits. The invention first performs a preliminary extracting and index processing of the circuit design and then performs feature searching. When performing the preliminary extracting and index processing the invention establishes a window grid for the circuit design and merges basis patterns with shapes in the circuit design within each window of the window grid. The invention transforms shapes in a each window into feature vectors by finding intersections between the basis patterns and the shapes in the windows. Then, the invention clusters the feature vectors to produce an index of feature vectors. After performing the extracting and index processing, the invention performs the process of feature searching by first identifying a defect region window of the circuit layout and similarly merging basis patterns with shapes in the defect region window. This merging process can include rotating and mirroring the shapes in the defect region. The invention simi-

larly transforms shapes in the defect region window into defect vectors by finding intersections between basis patterns and the shapes in the defect region. Then, the invention can easily find feature vectors that are similar to the defect vector using, for example, representative feature vectors from the index of feature vectors. Then, the similarities and differences between the defect vectors and the feature vectors can be analyzed.